E2280.003720. PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

EDWARD L. RAPP ET AL.

Application No.: 10/615,249

Filed: July 8, 2003

For: TASTING ENERGY BAR
(As Amended)

Examiner: H. Pratt

Group Art Unit: 1761

May 8, 2006

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FIRST DECLARATION UNDER 37 C.F.R. §1.132

Sir:

I, Edward L. Rapp, declare and say that:

1. I am a Technology Vice President at Masterfoods USA and have been in this position since February of 2006. Prior to that, I have held the positions of Innovation Director (2005), Innovation Manager (2004), Senior Scientist (1999-2004), and Research Scientist (1996-1999).

2. I graduated from Purdue University in May of 1996, with a Bachelor of Science degree in Food Science.

3. I am the first named inventor on the above-identified United States Patent Application.

4. I have managed projects related to the development of energy bars from 1999-2004 and have been intimately involved in all developmental aspects of these

products. This includes working as part of a cross-functional team with marketing, manufacturing, purchasing, and research and development functions, and managing material science development aspects (manipulating formula and process to achieve desired product attributes, including scale-up to production process) for energy bars.

5. I have reviewed several of the Office Actions issued by the Patent Office and find that one point of disagreement appears to be the recognition that energy bars are a food category segment.

6. Energy bars were introduced to consumers during the late seventies to early eighties. Generally, small companies manufactured and marketed these products to specific consumer groups, creating a niche business. Gradually the popularity of energy bars grew and more and more consumers became interested in using these products as a source of nutrition. Food manufacturing companies recognized the growing consumer interest in this new food category segment and the business opportunity it presented. Masterfoods USA, as well as other food manufacturing companies began offering consumers more choices. The market started to expand when POWERBAR® was developed in the mid 1980's. In 1997, consumers spent an estimated $100 million dollars on energy bars. In 2004, an estimated $840 million dollars were spent. Clearly, consumers want energy bar products.

7. As I've indicated in paragraph 4 of my declaration, I have spent about 5 years working on developing energy bars at Masterfoods USA, and other individuals have also contributed much to this effort. This is a significant investment in time and resources to develop a product when compared to the typical requirements to develop a confectionery product.

8. An energy bar is designed to provide significant levels of nutrients such as protein and fortification components in a low fat and low calorie bar. The nutritional benefits found in these bars sets them apart from candy bars and/or granola bars, which are more familiar to consumers. Energy bars have, as defined in this application, about 15 to about 45 g of carbohydrates, about 1 to about 4.5 g of fortification components, about 8 to about 40 g of protein, about 3 to about 8 g of fat, about 150 to about 300 calories, and a moisture content of less than about 15% by weight, based on a 55 g serving size.

9. I am aware that the Examiner has rejected Claims 1-8, 10-13 and 18-22 under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 4,055,669 ("Kelly et al.") in view of U.S. Patent No. 6,592,915 ("Froseth et al."). In addition, the Examiner has rejected Claims 23 and 24 under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 3,615,590 ("Avera et al."). I am also aware that the Examiner has rejected Claims 14-17 under 35 U.S.C. § 102(b) as allegedly being anticipated by a publication by Rombauer et al. in the "Joy of Cooking" (p. 708).

10. I have reviewed Kelly et al. and have determined that the amount of fat in the food composition of Kelly et al. is above the limit set forth in the definition provided in paragraph 8. The food composition described in Kelly et al. has at least 11 g of fat. This is outside and well above, 25% above, the upper range of permissible fat, i.e., 8 g fat, permitted in the energy bar as defined in paragraph 8.

a. Kelly et al. discloses that a binder composition makes up 60-70% of the food composition (column 2, lines 56-58). The fat content of the binder composition ranges from a minimum of about 33% by weight to a maximum of about 85% by weight, and is preferably about 47% by weight

(column 3, lines 61-64). Using this information, the minimum amount of fat in the binder composition is determined by multiplying the (% binder) by the (% fat in the binder) by the (serving size). Based on a 55 g serving, the fat in the binder composition alone is 10.9 g of fat (55 g X (33% fat) X (60% binder)). In addition, there is also fat in the cereal components that make up the other 40% of the food composition. Low fat cereal components such as crisp rice or corn flakes have about 0.5% fat. For a 55 g serving basis, there would be about 0.1 g of fat (55 g X (0.5% fat) X (40% cereal)) in the cereal portion.

11. I have also reviewed Froseth et al. and found that it describes a cereal bar. However, it does not describe a cereal bar having about 1 to about 5 g of fortification components as required by the definition of an energy bar in this application. In fact, it contains 44% less fortification than the required level.

a. Froseth discloses an embodiment where the amount of tricalcium phosphate (TCP), i.e., mineral, in the binder is 3% on a weight basis (column 15, lines 17-25), and that the binder makes up 40% of the cereal bar (column 11, lines 15-16). In a 55 g serving, the amount of TCP in the cereal bar is determined to be 0.66 g of TCP (55 g X (40% binder) X (3% TCP in binder)). Therefore, Froseth et al. does not describe a cereal bar which has fortification components within the range of about 1 to about 4.5 grams, as defined in paragraph 8.

12. In addition, I have reviewed Rombauer et al. and found that it does not have the required protein and fortification component levels specified in paragraph 8. I have determined that the protein content in the Pfeffernusse composition is approximately

4.6 g. This is over 40% below the minimum of 8 g of protein set forth in the energy bar definition. In addition, the Pfeffernusse composition does not include fortification components, which are also an important part of the energy bar.

13. The following table lists the ingredients used to make the Pfeffernusse composition and was used to determine the total amount of protein.

PFEFFERNUSSE

| Ingredient | | Grams of Protein (based on 55 g serving) |
|---|---|---|
| Flour | 2.01 cups | 3.21 |
| Baking Powder | 0.75 tsp | |
| Baking Soda | 0.13 tsp | |
| Salt | 0.25 tsp | |
| Black Pepper | 0.25 tsp | 0.01 |
| Nutmeg | 0.25 tsp | 0.01 |
| Cinnamon | 1 tsp | 0.01 |
| Fennel Seed | 1 tsp | 0.05 |
| Butter | 0.5 cups | 0.03 |
| Sugar | 0.33 cup | |
| Egg | 1 | 0.47 |
| Chopped Almonds | 0.25 cup | 0.82 |
| Chopped Citron | 1 tbsp | |
| Orange Peel | 0.25 cup | |
| Molasses | 0.33 cup | |
| Corn Syrup | 1 tbsp | |
| Brandy | 0.33 cup | |
| Lemon Rind | 1 tsp | |
| Lemon Juice | 1 tbsp | |
| TOTAL | | 4.61 |

14. While the food products of Kelley et al., Froseth et al. and Rombauer et al. may or may not taste good, they do not meet the criteria set forth in paragraph 8 that defines an energy bar. Therefore these products are not relevant to a discussion of energy bars. Based on that definition, the food products disclosed in Kelley et al., Froseth et al. and Rombauer et al. are not energy bars.

15. Simply adding the missing fortification and/or protein to the food products described, in my opinion, would not result in a product that would taste good or

meet our hedonic score. Designing a good tasting energy food product within the defined ranges stated in paragraph 8 is extremely difficult. Other maker's of energy bar products within the range constraints in paragraph 8 have not been able to make a good tasting product that matches the mean hedonic scores recited in Claim 1 (mean hedonic score of 5.2) or Claim 7 (chewy bar, mean hedonic score of 4.9). This can be seen by the hedonic scores of POWERBAR® (4.78) or LUNA® (5.06) which are shown in the comparative examples in the application. These were the best tasting top products in an energy bar market that has existed for over 20 years.

16. Froseth et al. has 44% less fortification components than required. Fortification components generally have an extremely bad taste. For example, Vitamin B is known to have a medicinal and metallic flavor, and is somewhat smelly. Calcium, a mineral, is known to be rather chalky. Simply adding these to the product would cause a significant detriment to the taste of the product.

17. The Pfeffernusse composition of Rombauer et al. is likely to be a good tasting product precisely because it is outside the permissible nutritional requirements of an energy bar. As noted in paragraph 12, the Pfeffernusse composition has only 4.6 g of protein and no fortification components. If the Pfeffernusse composition were modified to comply with the energy bar definition of paragraph 8, the protein content would have to increase by 74% and 1 g of fortification components would have to be added. In addition to the discussion on the fortification ingredients above, the protein powders also have a significantly detrimental effect on the taste of food products. Protein powders create a highly undesirable mouth drying sensation, and the protein powders commonly used in energy bars often have a green and beanie flavor. The additional protein required for the

Pfeffernusse composition to achieve the levels needed for an energy bar alone would severely negatively impact the product's taste.

18. Typically, the negative taste of the protein and fortification ingredients in food products is balanced by higher levels of fat and carbohydrates. The higher amounts of fat can be used to mask or cover up the negative taste. However, this is not possible within the restrictive compositional limits for energy bars.

19. While small changes or deviations from the specified ranges may seem of little or no consequence when looked at in terms of weight, e.g., 0.5 g versus 0.3 g. Those changes, however, are quite significant in terms of percentage. For example, the above represents a 66% decrease in the one component. When you're dealing with a bad tasting component, this will have a great impact on taste.

20. However, using one or more of the inventive processing techniques described in the present invention will improve the taste of an energy bar product. The improved taste has been confirmed through sensory testing where energy bars made in accordance to the invention and within the compositional limits set forth for energy bars were tested against leading energy bars on the market. Energy bars of the invention consistently had a higher hedonic score than leading energy bars on the market.

21. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Subscribed this 8 day of May, 2006.

Edward L. Rapp

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02280.003720. PATENT APPLICATION

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6. Energy bars are food products that are designed to provide significant levels of nutrients such as protein and carbohydrates in a low fat and low calorie bar. The nutritional benefits found in these bars sets them apart from the more familiar candy and/or granola bars. Energy bars, in this application, have about 15 to about 45 g of carbohydrates, about 1 to about 4.5 g of fortification components, about 8 to about 40 g of protein, about 3 to about 8 g of fat, about 150 to about 300 calories, and a moisture content of less than about 15% by weight, based on a 55 g serving size. Food product compositions that fall outside these ranges are not recognized as energy food products, e.g., energy bars, by consumers and food companies.

7. At first, manufacturers of energy bars primarily sought to provide nutritional benefits in a convenient portable product. However, the energy bars first developed and sold to consumers simply did not taste good. This reinforced the consumers' belief that nutritional foods taste bad.

8. Many food companies have expended much effort over the last two decades on improving the taste of energy bars with very limited success. Improving taste while maintaining nutritional value has proven to be a difficult goal to achieve, especially working within the ranges specified in paragraph 6. Even today, the majority of energy bars that are currently marketed still do not satisfy many consumers' taste expectations.

9. Typically, consumers complain that energy bars are too dry, chewy, chalky, sandy, crumbly, etc. Some simply describe them as "disgusting." Many consumers just avoid the product altogether, while others who do buy energy bars have come to accept a bad tasting product, believing that taste has to be sacrificed for nutrition. Clearly, most consumers have not been satisfied with the choices available in the energy bar category.

10. The present invention as described in U.S. Patent Application Ser. No. 10/615,249 provides an energy bar that delivers nutrients within defined carbohydrate, fortification component, protein, fat, calorie and moisture ranges, which actually tastes good as demonstrated by a hedonic score for consumer acceptability of at least 5.2.

11. The commercial embodiment of the present invention has successfully met consumers' expectations by delivering an energy bar that tastes good and provides nutritional value consistent with the energy bar category. This has been achieved by carefully combining ingredients in a manner and in amounts as taught in the present invention that produces an exceptionally good tasting energy bar, which has superior taste, texture, and appearance.

12. Consumers appear to agree. Two energy bars were initially introduced into the energy bar market in 2003, SNICKERS MARATHON® Multi-Grain Crunch and SNICKERS MARATHON® Chewy Chocolate Peanut. These were later

followed by SNICKERS MARATHON® Caramel Nut Rush, SNICKERS MARATHON® Chocolate Nut Burst, SNICKERS MARATHON® Peanut Butter Low Carb and SNICKERS MARATHON® Chocolate Fudge Brownie Low Carb energy bars.

13. As of September 4, 2005, SNICKERS MARATHON® Multi-Grain Crunch is the #1 selling energy bar, followed by SNICKERS MARATHON® Caramel Nut Rush at #2. SNICKERS MARATHON® Chewy Chocolate Peanut is at #4 and SNICKERS MARATHON® Chocolate Nut Burst is at #5. Two recently introduced energy bars, SNICKERS MARATHON® Peanut Butter Low Carb is at #10 and SNICKERS MARATHON® Chocolate Fudge Brownie Low Carb is at #12. This ranking is based on the sales velocity, which measures how quickly a product moves off the shelf. Each of these bars exceeded expectations. In less than 2 years, SNICKERS MARATHON® has taken over the 1st, 2nd, 4th and 5th positions as the fastest selling energy bars in the market. This achievement is very significant when you consider that recognized and established brands such as POWERBAR® have been around since 1988.

14. The successful result is not simply due to marketing. While $25.3 million were initially spent during the introduction of SNICKERS MARATHON® Energy Bars in 2004, the success and popularity of these products have continued to grow. In 2005, only $4 million in advertising dollars were spent on SNICKERS MARATHON® bars. In comparison, in 2005, POWERBAR® Brand Energy Bars, the leading brand and perhaps the most recognized brand of energy bars which has been around for 21 years, spent about $15 million in advertising dollars (almost four times as much as SNICKERS MARATHON® bars), yet SNICKERS MARATHON® bars still outsold each of the POWERBAR® bars. Consumers have voted with their pocketbooks and have rewarded

the new offerings from SNICKERS MARATHON® in the energy bar category by making them the most popular energy bars in that category.

15. Further evidence of success is based on SNICKERS MARATHON® having received dozens of awards, including over 6 major awards since 2003. For example, SNICKERS MARATHON® Energy Bar Double Chocolate Nut, the newest introduction, has been named the "Best Bar" in Health® magazine's "Best of Fitness Awards 2006." See Exhibit A. Another example is the honorable mention of SNICKERS MARATHON® Energy Bars from Prepared Foods® magazine "Spirit of Innovation Awards: Retail." The winner of the award was a packaging design rather than a food product design.

16. Clearly, SNICKERS MARATHON® Energy Bars are commercially successful products. That success is the result of superior tasting products, manufactured using one or more of the processing techniques disclosed in the above-identified application.

17. During an interview conducted with the Examiner on October 6, 2005, an example of how the processing techniques and methods of the invention are used to improve an energy bar product was presented. At the interview, we presented the Examiner with two samples of binder syrup. The ingredients used to make the binder syrup were as follows:

| Ingredient | grams |
|---|---|
| 63 DE Corn Syrup | 151.21 g |
| High Fructose Corn Syrup | 161.26 g |
| Glycerin | 28.65 g |
| Peanut Butter | 20.46 g |
| Fortification Blend | 52.09 g |

18. The first sample was made by mixing the ingredients at a temperature of about 100 °C, e.g., high temperature and high shear conditions.

19. The second sample (of the invention) was manufactured by mixing the ingredients in a temperature range of 50-65 °C, at low temperature and low shear conditions. These conditions are within the ranges specified in claim 1.

20. The appearance and smell of the first sample was very different from the appearance and smell of the second sample. The first sample was rather viscous, which is not a desirable product attribute since highly viscous binder syrups are known to have a negative impact on taste and texture, making the final product tougher to chew. The viscosity of the second sample was much lower and more suitable for use in an energy bar. This was a particularly surprising result at the time of the invention. Additionally, the first sample had an unpleasant vitamin smell, and the binder syrup appeared to be a greenish tinted color. In contrast, the second sample (of the invention) had a neutral smell and was a golden yellow color.

21. As discussed in the application, another technique for improving the taste of an energy bar is to include the inventive fat-carbohydrate matrix blended into the base energy bar matrix. The taste improvement is apparent when you compare Examples 1 and 2 in the specification. In Example 1, a chewy based energy bar made under the inventive low temperature and low shear conditions received a mean hedonic score of 5.2. In Example 2, the inventive low temperature and low shear conditions were also used, but a fat carbohydrate matrix was added to the chewy based energy bar mixture. The mean hedonic score for the chewy energy bar of Example 2 was 5.64. This is a 0.44 point increase in the mean hedonic score, which is significant. And importantly, this taste

improvement and increase in the mean hedonic score was achieved while adhering to the ranges specified in paragraph 6, which define an energy bar.

22. The taste of an energy bar may also be improved by using protein powders that have a particle size distribution where at least about 30 weight percent of the protein powder has a mean particle size of at least about 35 microns. The taste benefits are shown in Example 5 of the specification, where energy bars were made using soy protein isolates of varying mean particle diameters. Sample A was prepared by mixing 12.1 wt.% of a soy protein isolate, where about 50 to 60 wt.% of the soy protein isolate had a mean particle diameter of about 16 microns, into an energy bar product. Sample B was prepared using the same procedure as Sample A, except that the soy protein isolate of sample B had a mean particle diameter of about 33 microns (about 50 to 60 wt.% of the soy protein isolate). Sample C was prepared using the same procedure as Sample A, except that the soy protein isolate of sample C had a mean particle diameter of about 54 microns (about 50 to 60 wt.% of the soy protein isolate). It should be noted that the protein content for all soy protein isolate samples was 90% protein.

23. Samples A, B, and C were evaluated by a sensory panel. The participants rated samples A, B, and C for mouth drying sensation based on a scale from 0 to 15. 0 being the best and 15 the worst. A score of 5 was considered ideal. The samples were scored by the participants as follows:

| Sample | Score |
|---|---|
| Sample A (16 microns) | 13.5 |
| Sample B (33 microns) | 10.0 |
| Sample C (54 microns) | 8.5 |

24. The mouth drying sensation of protein powders has a severely detrimental impact on the overall taste of an energy bar, particularly at the very high levels required to meet nutritional limitations. The results clearly show that as the mean particle size of the protein powder increases, the mouth drying sensation decreases, thus improving the overall product taste.

25. I disagree with the Examiner's statement that the agglomerated particles in Kelley is relevant. Kelley describes fat occluded particles of protein, which are milled to the appropriate size. This size is specific to the particle in its entirety but not the protein particle. These particles would be much smaller than the total agglomerate.

26. These are significant discoveries. With this understanding and knowledge, we have designed better tasting energy bars for consumers.

27. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Subscribed this 8 day of May, 2006.

Edward L. Rapp

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